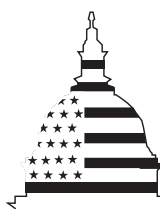


October 2000

HAZARDOUS WASTE

Effect of Proposed Rule's Extra Cleanup Requirements Is Uncertain



G A O

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United States General Accounting Office
Washington, D.C. 20548

October 20, 2000

The Honorable Michael Oxley
Chairman
The Honorable Edolphus Towns
Ranking Minority Member
Subcommittee on Finance and
Hazardous Materials
Committee on Commerce
House of Representatives

The Resource Conservation and Recovery Act (RCRA) of 1976, as amended, established three key requirements governing the treatment, storage, and disposal of hazardous waste. First, under the land disposal requirements, this waste usually must be treated to minimize threats to human health and the environment before it is disposed of on land. Second, under the minimum technology requirements, certain facilities (such as landfills) that treat, store, or dispose of this waste must meet certain design standards, such as installing a double liner under the landfill to protect soil and water from contamination. Finally, facilities that treat, store, or dispose of hazardous waste must typically obtain a permit to do so. In general, a facility that has an ongoing industrial activity and is requesting a permit to treat, store, or dispose of hazardous waste is required to clean up all parts of its property that were contaminated by its past industrial operations. Under its “corrective action” program, the Environmental Protection Agency (EPA) seeks to ensure that the operating facilities that pose a potential risk to human health or the environment are cleaned up.

We previously reported that these three requirements of RCRA were successful at ensuring that process waste—that is, waste newly generated by currently operating industrial facilities—was being managed safely.¹ However, these requirements also had the unintended consequence of deterring the cleanup of sites whose property was contaminated with old, previously generated waste. Such sites included not only operating facilities conducting cleanups under the corrective action program but also abandoned sites posing high risks that are subject to EPA’s Superfund program. RCRA’s requirements also deterred the cleanup of other sites,

¹*Hazardous Waste: Remediation Waste Requirements Can Increase the Time and Cost of Cleanups* (GAO/RCED-98-4, Oct. 6, 1997) and *Hazardous Waste: EPA Has Removed Some Barriers to Cleanups* (GAO/RCED-00-224, Aug. 31, 2000).

frequently less risky, that states are addressing under their own cleanup programs. This deterrent effect occurred because the parties planning to treat, store, or dispose of remediation waste—that is, waste generated during the cleanup of a site—had to comply with RCRA's requirements designed for process waste. These requirements are frequently more stringent and costly than necessary for cleaning up some hazardous waste, especially waste that poses less risk. Thus, even if treating or permanently removing the waste was the preferred option, parties sometimes decided not to clean up certain sites or sought to leave the waste in place at others.

EPA has undertaken a number of initiatives to try to address the barriers that these three RCRA requirements have posed to managing remediation waste. For example, in February 1993, EPA issued the Corrective Action Management Unit (CAMU) rule, which generally provided that the agency could designate a portion of a site, such as an old landfill, as a CAMU. Parties could then temporarily or permanently deposit waste in the CAMU without triggering RCRA's land disposal and minimum technology requirements, as long as this disposal did not pose a significant risk to human health or the environment. Managing waste in this manner could save tens of millions of dollars at some sites, according to EPA program managers.

Later that year, however, certain industry groups involved in environmental and hazardous waste treatment sued EPA. Among other things, they alleged that the CAMU rule allows for the management of hazardous waste in violation of RCRA's land disposal restrictions and, therefore, that such waste might not remain safe over the long term. To settle this lawsuit, in February 2000, EPA agreed to propose amendments to the 1993 rule by imposing some waste treatment and design requirements. EPA published its proposed amendments on August 22, 2000, has solicited public comments on them, and plans to take final action on the proposal in October 2001.

Because of your interest in the progress of cleaning up hazardous waste sites, you asked us to (1) describe the major differences between the 1993 and the most recently proposed CAMU rules; (2) determine what data are available to demonstrate that CAMUs approved under the 1993 rule remain protective of human health and the environment; and (3) determine stakeholders' views on the possible deterrent effects that the proposed CAMU rule could have on corrective action, Superfund, and state cleanups. To help us determine the possible effects of the proposed rule, we contacted officials responsible for managing hazardous waste cleanup

programs in EPA and in a number of states and Fortune 500 companies, as well as the national associations that represent both state environmental agencies and industries involved in cleanups. We also contacted directors in charge of cleanup issues at the two environmental groups most directly involved in the CAMU lawsuit. Our detailed scope and methodology are in appendix I.

Results in Brief

The 1993 and proposed rules that govern the treatment, storage, and disposal of hazardous waste onsite in CAMUs differ primarily in the requirements for waste treatment and facility design that they place on the use of CAMUs. The 1993 rule did not establish specific treatment or design requirements, although its preamble stated that using treatment, as appropriate, would enhance the long-term effectiveness of a cleanup. Instead, the rule provided EPA and states with the flexibility to decide, according to the risks posed by the waste and the site's unique conditions, what treatment or design features would be necessary. In contrast, the proposed rule would generally require that the contaminants posing the greatest potential risk be treated before being placed in a CAMU. Furthermore, any new, replaced, or expanded units must be constructed to meet certain design standards, such as having a liner under the waste to prevent its leakage and migration.

Relying on an EPA study of the CAMUs approved under the 1993 rule, EPA maintained that the rule was working well and that the CAMUs were protective of human health and the environment. For example, even though the rule did not require that hazardous waste be treated before placement in a CAMU, some waste was treated at about 70 percent of the CAMUs. The groups that challenged EPA over the rule maintain that it does not ensure that the CAMUs will remain safe over the long term and that they have not been operating long enough to experience problems. However, these groups did not know of instances where problems had occurred at CAMUs approved under the 1993 rule.

According to EPA, the proposed rule will increase the time and the costs of site cleanups using CAMUs because it is less flexible than the 1993 rule and adds technical and process requirements. Although EPA and several environmental representatives did not expect the added requirements to be a significant deterrent, several industry representatives predicted that these changes would be burdensome enough to deter some parties from using CAMUs. It is uncertain how the proposed rule would affect cleanups managed under state programs. EPA said that the proposed rule would

apply only to those site cleanups where parties want to use a CAMU; to date, EPA's experience shows these have primarily been sites being cleaned up under the corrective action and (to a lesser extent) Superfund programs. Nevertheless, several state representatives expressed concern that the requirements under the proposed rule could end up being applied to cleanups conducted under their programs, regardless of whether they were using CAMUs, thereby deterring the progress states have been making in cleaning up sites.

Background

In our prior reports on the management of remediation waste under RCRA, we identified three RCRA requirements—land disposal, minimum technology, and permitting requirements—that, while effective at controlling contamination from newly generated waste, posed barriers to managing remediation waste, thereby discouraging some cleanups. The land disposal requirements posed barriers because, even though some hazardous waste is lightly contaminated, the only way to meet these requirements was by incineration, one of the most costly treatment methods. Furthermore, RCRA's requirements did not account for the fact that new technologies, such as using organisms to decompose waste in place, could result in cleanups with reduced risks at much lower costs. The minimum technology requirements posed barriers because it was unnecessary and too costly to require that certain waste, which did not pose a significant risk to human health or the environment, be placed in a disposal facility that met RCRA's design requirements rather than in less costly facilities. Finally, because the permitting process required large volumes of information and could take several years, the process slowed cleanups, thereby jeopardizing the redevelopment and reuse of some sites. To avoid triggering any of these RCRA requirements, parties did not clean up some sites or chose to leave the waste in place at others rather than permanently remove it, which is the preferred option in some cases.

Recognizing that these three RCRA requirements were a disincentive to some cleanups, EPA issued a number of regulations and policies that parties could use under certain circumstances to avoid triggering these requirements, including the 1993 CAMU rule. For example, under EPA's "area of contamination" policy, if waste lies within contiguous contaminated areas of a property, EPA interprets RCRA to allow parties to consolidate the waste within the area without having to meet RCRA's requirements.

Under RCRA, a state may enact its own hazardous waste cleanup program and receive authorization from EPA to operate it in lieu of the federal program. As of August 2000, 35 states were authorized to implement the corrective action program, and 22 were authorized to implement the 1993 CAMU rule. EPA implements the corrective action program in the remaining states.

Compared to the 1993 Rule, the Proposed Rule Adds More Waste Treatment and Unit Design Requirements for CAMUs

The 1993 rule established that hazardous waste managed in a CAMU would not be subject to RCRA's land disposal or minimum technology requirements. Thus, parties could place waste generated during a cleanup in a CAMU without first having to treat it. EPA had hoped that the 1993 rule would address the disincentives that these two RCRA requirements posed to some cleanups and would lead to more efficient and faster cleanups. According to EPA, under the 1993 rule, the agency and authorized states had more flexibility to manage hazardous waste and design a CAMU according to the risks the waste posed. For example, if the parties treated the waste so it no longer posed a significant risk, they may not have to put it in a CAMU with a liner. Similarly, if the parties intended to place waste that was only lightly contaminated in a lined facility, they might not necessarily need to treat it first.

However, certain environmental groups and the waste treatment industry group were concerned that the 1993 rule gave EPA and the states too much discretion and did not ensure that CAMUs would remain safe over the long term. They firmly believed that EPA should establish nationwide, minimum baseline standards requiring that the most hazardous waste be treated and that the CAMUs accepting that waste have protective design features.

In 1997, we reported that EPA wanted to settle the lawsuit to remove the legal uncertainty that deterred some parties from choosing a CAMU as a cleanup option. EPA negotiated a compromise settlement with the environmental and waste treatment industry groups and agreed to propose amendments to the CAMU rule. The proposed rule, which was published in August 2000, is more stringent than the 1993 rule but not as stringent as the original land disposal and minimum technology requirements RCRA established. For example:

- The proposed rule requires that certain wastes be treated, but to a lesser extent than under RCRA's land disposal requirements. Under the latter, according to EPA, waste has to be treated until the concentration of its contaminants is reduced to the levels achievable by the best available

technologies. For some contaminants, these concentration levels—known as universal treatment standards (UTS)—are so low that those contaminants must virtually be eliminated. Under the proposed rule, parties must identify the contaminants that pose the greatest risk to human health and the environment and treat the waste containing them until their amounts or concentrations are reduced to a certain level, but one that is less stringent than the UTS. According to EPA, for a large site with multiple contaminants, treatment might be required for only a few, rather than all of them, as could be the case under the land disposal requirements. Furthermore, parties most likely could select less costly treatment options than incineration.²

- The proposed rule requires new, replaced, or expanded CAMUs to meet design standards, but the standards are less stringent than the minimum technology requirements for landfills. For example, the technology requirements generally specify that a landfill have a thick soil bottom, two synthetic liners, and two leachate collection systems. In contrast, under the proposed rule, CAMUs generally would only need a composite layer and one synthetic liner and one leachate collection system. According to EPA, this is because the contaminants posing a significant health risk would have been treated and thus would pose a reduced risk if the CAMU failed and they leaked and migrated.

The proposed rule also provides for adjusting requirements for a CAMU according to site-specific factors under certain circumstances. For example, if waste at a particular site is not likely to migrate or if it is technically impracticable to meet RCRA's treatment requirements, parties can request to adjust them. Certain stakeholders acknowledged that, with this provision, some parties might be able to achieve the same type of CAMU under the proposed rule as they would have achieved under the more flexible 1993 rule. However, the process to request and obtain approval for these adjustments would increase the time and the costs of those cleanups.

²According to EPA, prior to the proposed amendments to the CAMU rule, the agency had issued new cleanup standards for contaminated soil that, in effect, allowed parties to select treatment options other than incineration for this medium. The proposed CAMU rule would achieve this same effect for other media.

EPA Did Not Find Problems With CAMUs Approved Under the 1993 Rule, but Environmental Groups Say It Is Too Early to Tell

In the proposed rule, EPA stated that it had not identified problems with the CAMUs approved under the 1993 rule. EPA based this on a study of 39 CAMUs that were either approved or near approval under the 1993 rule and for which the agency had the best available information. Of these, 30 were intended for the permanent disposal of hazardous waste and 9 were approved to operate until treatment or storage activities at the unit had been completed. EPA reported that almost all of the 39 CAMUs would also be approved under the terms and conditions of the proposed rule. Furthermore, waste in about 70 percent of the CAMUs had undergone some treatment, even though the 1993 rule did not specifically require it. EPA pointed out that, nevertheless, it agreed to partly amend the 1993 rule to resolve the legal uncertainty resulting from the lawsuit, as well as to clarify and make public the agency's general expectations for CAMUs.

None of the representatives of the groups that challenged EPA over the 1993 rule was aware of instances where CAMUs approved under this rule had any operational problems that posed a significant risk to human health or the environment. Several state and industry representatives pointed out that, because EPA or an authorized state agency must approve requests for CAMUs, they help ensure that problems do not arise.

Executives with one of the two environmental groups and with the waste treatment industry group that challenged EPA over the 1993 rule said that they were not surprised at the lack of problems with CAMUs approved under this rule for two reasons. First, according to the environmental executives, these CAMUs were relatively new and it was too early to see such problems as leaking and migrating contaminants. Not wanting to wait to see if problems would arise, these three groups wanted to be proactive and set minimum requirements for treating hazardous waste and designing CAMUs to avoid potential problems. Second, according to the waste treatment industry executives, because of the legal uncertainty regarding the 1993 rule, in general, parties using CAMUs had not used the full flexibility it provided. These industry executives believed that parties conducting cleanups were concerned that if they did so, and EPA lost the lawsuit, they would need to take additional cleanup actions at their CAMUs, which would be costly. According to these executives, parties were conservative and incorporated some of the treatment and design requirements into operating their CAMUs, even if the 1993 rule did not require them to do so. The executives believed this strategy would help ensure that their CAMUs would remain safe over the long term. The three groups were concerned that, without the lawsuit and amendments to the

rule, the parties conducting cleanups would not treat certain hazardous waste or line the units and that problems would occur in the future.

Stakeholders Disagree on Whether the Proposed Amendments to the 1993 Rule Would Deter Cleanups

Although the added requirements in the proposed rule would likely increase the time and the costs of cleanups, determining if they would discourage requests for CAMUs is difficult. The stakeholders we contacted disagreed on the deterrent effect that the proposed rule would have on future cleanups under the corrective action, Superfund, and state programs.

EPA and the Litigants Do Not Expect the Amendments to Significantly Deter Cleanups, but Industry Representatives Disagree

EPA does not anticipate that the proposed amendments to the CAMU rule, which is expected to go into effect in January 2002, will deter cleanups. Until then, EPA thinks that the number of requests for CAMUs might increase because any CAMU can be approved under the more flexible terms of the 1993 rule. While the litigants that challenged the 1993 rule acknowledge that the proposed rule adds requirements to those cleanups using a CAMU, they believe the additional requirements are necessary and will not be significant enough to discourage parties from using CAMUs.

In contrast, industry representatives, some of whose companies are involved in large corrective action cleanups, believe the additional requirements are not justified, are unnecessarily redundant and costly, and will discourage some parties from conducting cleanup activities. These representatives gave EPA credit for soliciting their views during settlement negotiations, but they believe the agency gave up too much of the flexibility provided under the 1993 rule. They believe that rule was working and provided for safe but cost-effective CAMUs.

EPA program managers, who set policy on requirements for Superfund cleanups, do not expect the proposed rule to significantly deter the use of CAMUs at such cleanups because not many parties have used CAMUs as an option. The managers reported that parties were using EPA's other policy options, such as the "area of contamination" policy, to avoid triggering some of RCRA's requirements, such as the land disposal and minimum technology requirements, and the managers expected that those parties would be able to continue to use these options. Likewise, officials at the departments of Defense and Energy who are involved in Superfund cleanups at their facilities did not expect the proposed rule to have a significant negative effect on these cleanups.

States Are Less Certain of the Proposed Rule's Deterrent Effect on the Cleanups They Manage

The potential impact that the proposed rule could have on state programs is less clear. Some state cleanup program managers said that their states approved cleanups under their own programs that used storage and disposal methods similar to those that would be used under a CAMU but did not go through the formal process to approve these activities as CAMUs. States based their actions on language in the preamble to the 1993 rule that outlined how they could use their own authorities to waive RCRA's hazardous waste requirements, as necessary, to authorize these "CAMU-like" activities. Several state program managers and executives of the two associations representing state cleanup agencies were concerned that because the proposed rule is less flexible and more stringent than the 1993 rule, it would be harder for states to justify using CAMU-like activities, thus deterring cleanups under state programs.

Representatives from one of the state associations also explained that parties conducting cleanups under state programs sometimes avoided triggering RCRA's hazardous waste management requirements by following one of EPA's alternative options, the "source of contamination" policy. Under this policy, a party must make a good-faith effort to determine the source of a site's hazardous waste. Knowing its source allows parties to determine whether the waste is on the list of wastes that EPA has deemed hazardous under RCRA. When no records exist to document the source, EPA allows the agency managing the cleanup to presume that the waste is not subject to RCRA's requirements. However, the state representatives believe the proposed CAMU rule has more extensive requirements than this for parties to identify the contaminants that pose the greatest risk and thus are concerned that it will be harder to use this policy alternative, thereby deterring cleanups. EPA stated that it expects parties will make the same good-faith effort to identify hazardous waste under the proposed rule as under the source of contamination policy. Also, the agency does not intend for the proposed rule to change any policies, other than those relating to CAMUs, that the states already have been using to achieve cleanups or for it to have a negative impact on state programs.

Because the amendments in the proposed rule are more stringent than the 1993 rule, states are concerned that they might have to go through a long and burdensome process to be authorized to implement the amendments. However, the proposed rule provides that if a state is already authorized to implement the 1993 rule and meets certain other criteria, that state could receive 3-year interim authority from EPA to implement the proposed rule. In the meantime, the state could go through its own rulemaking authority to make the amendments a permanent part of its own cleanup program.

EPA estimated that, as of the August 22 publication of the proposed amendments, 19 of the 22 states currently authorized to implement the 1993 rule would meet the criteria for this interim authorization. According to EPA, the remaining three states, if they resolve certain issues before the proposed rule is final, would also qualify for interim authorization.

EPA also expected that some of the 13 states authorized to implement the corrective action program but not the 1993 CAMU rule would want to be authorized to implement the proposed rule. The legal uncertainty over CAMUs would be resolved and they could be a cost-effective cleanup tool. EPA thereby proposed a more streamlined process for such states to obtain this authorization, for example, requiring fewer data submissions. Also, EPA noted that states often adopt federal regulations verbatim or incorporate them by reference into their own regulations. The agency believed that if any of the 13 states did this, the state could quickly receive authorization to implement the proposed rule.

Conclusion

EPA intended the 1993 CAMU rule to provide regulatory relief from RCRA's three requirements that were disincentives to some hazardous waste cleanups. The agency also expected the rule to provide parties with the flexibility to design CAMUs according to site-specific circumstances rather than to "one-size-fits-all" requirements, which can increase the time and costs of some cleanups. EPA expected the rule to lead to faster and more efficient, but equally safe, cleanups under the corrective action and Superfund programs. However, the legal challenge to the 1993 rule discouraged some parties from requesting CAMUs or using the full flexibility afforded by the rule. Therefore, relatively few CAMUs were requested under this rule. The proposed rule is intended to resolve, among other things, the legal uncertainty over the 1993 rule. However, this proposed rule would add requirements and processes. Certain groups believe these changes are necessary to help ensure the future safety of CAMUs. Other groups believe the changes would unnecessarily reduce the flexibility intended by the 1993 rule, which would increase the time and costs of some cleanups, and could discourage requests for CAMUs after the proposed rule is issued.

Agency Comments

We provided a draft copy of this report to EPA for its review and comment. EPA generally agreed with the report and provided technical and clarifying comments, which have been incorporated as appropriate. The agency also

wanted to emphasize two points. First, it was concerned that our discussion of the 1993 CAMU rule might lead to the conclusion that, under the rule, parties did not have to consider treating hazardous waste at all. Therefore, the agency wanted to restate that, while the 1993 rule did not contain any explicit or specific, detailed requirements that parties treat this waste, it did state in the preamble that treatment should be used, as appropriate, to enhance the long-term effectiveness of cleanups.

EPA also wanted to reemphasize that it did not have any intention for the proposed rule to affect any cleanups managed under state programs, other than those cleanups that wanted to use a CAMU. For example, one concern was that the requirements in the proposed rule—that parties must provide information on the source of waste and identify the principle hazards of concern in that waste when requesting a CAMU—would make it difficult for states to continue to use the source of contamination policy to avoid automatically triggering RCRA's requirements. EPA stated that the proposed rule should not interfere with the use of this policy. The agency assumed that, even under this policy, at the beginning of any cleanup, parties would go through some level of activity to determine whether hazardous waste was present, and, if so, what kind and at what concentration levels. According to EPA, parties conducting cleanups need to do this to determine what cleanup standards they will be required to meet at the site. Therefore, EPA assumed that the waste identification and characterization requirements in the proposed rule would not impose additional requirements on cleanups, especially those that are not using a CAMU. We clarified our report to address these concerns.

Unless you announce its contents earlier, we plan no further distribution of this report until 10 days after the date of this letter. At that time, we will send copies of the report to appropriate congressional committees and interested Members of Congress. We will also send copies of this report to the Honorable Carol M. Browner, Administrator, EPA, and the Honorable Jacob J. Lew, Director, Office of Management and Budget. In addition, we will make copies available to others on request.

We conducted this review from March through September 2000 in accordance with generally accepted government auditing standards. Key contributors to this report were Rich Johnson and Eileen Larence. If you or your staff have any questions about this report, please contact me at (202) 512-6111.

David G. Wood

David G. Wood

Director, Natural Resources
and the Environment

Objectives, Scope, and Methodology

Our overall objectives were to (1) describe the major differences between the 1993 and proposed Corrective Action Management Unit (CAMU) rules, (2) determine what data are available to demonstrate that CAMUs approved under the 1993 rule remain protective of human health and the environment, and (3) determine stakeholders' views on the possible deterrent effects that the proposed CAMU rule could have on corrective action, Superfund, or state cleanups. To respond to these objectives, we reviewed applicable statutory excerpts, the 1993 and proposed CAMU rules, certain cleanup policies, and other documents related to these issues. We also interviewed representatives from EPA and all major stakeholder groups that have been actively involved in the development of the CAMU rule and the proposed amendments. These groups include the following:

The Environmental Protection Agency (EPA)

- Managers within the Office of Solid Waste and Emergency Response
- Managers of the Superfund waste cleanup program

State Environmental Agencies

- Policy directors from the Association of State and Territorial Solid Waste Management Officials and the Environmental Council of States, as well as officials from associations representing managers of state cleanup programs
- Managers in eight states responsible for overseeing cleanups under the corrective action program or their own state cleanup programs (We selected five of the states—California, Illinois, New Jersey, New York, and Pennsylvania—because they collectively generate about 35 percent of the nation's remediation waste. The remaining three states—Texas, Washington, and Wisconsin—were selected for geographic diversity.)

Industry Groups

- Attorneys and cleanup managers from major corporations who are members of the following three national associations that represent industries involved in conducting cleanups: the RCRA Corrective Action Project, the Technical Group, and the Risk-Based Corrective Action Leadership Council
- Executive officers of the Environmental Technology Council, which represents private waste companies

Environmental Groups

- A principal attorney from Environmental Defense, a nonprofit environmental advocacy organization
- The former and current principal attorneys from the Natural Resources Defense Council

We conducted our review from March through September 2000 in accordance with generally accepted government auditing standards.

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